

JAPAN

AND

ITS INDUSTRIES



WORLD ENGINEERING CONGRESS

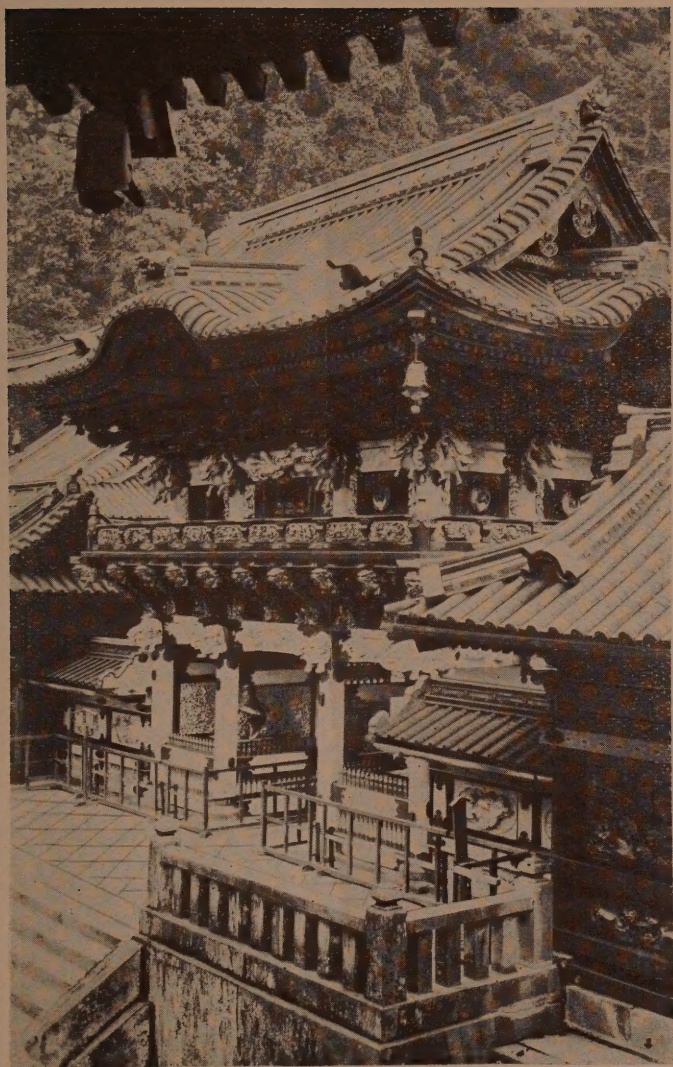
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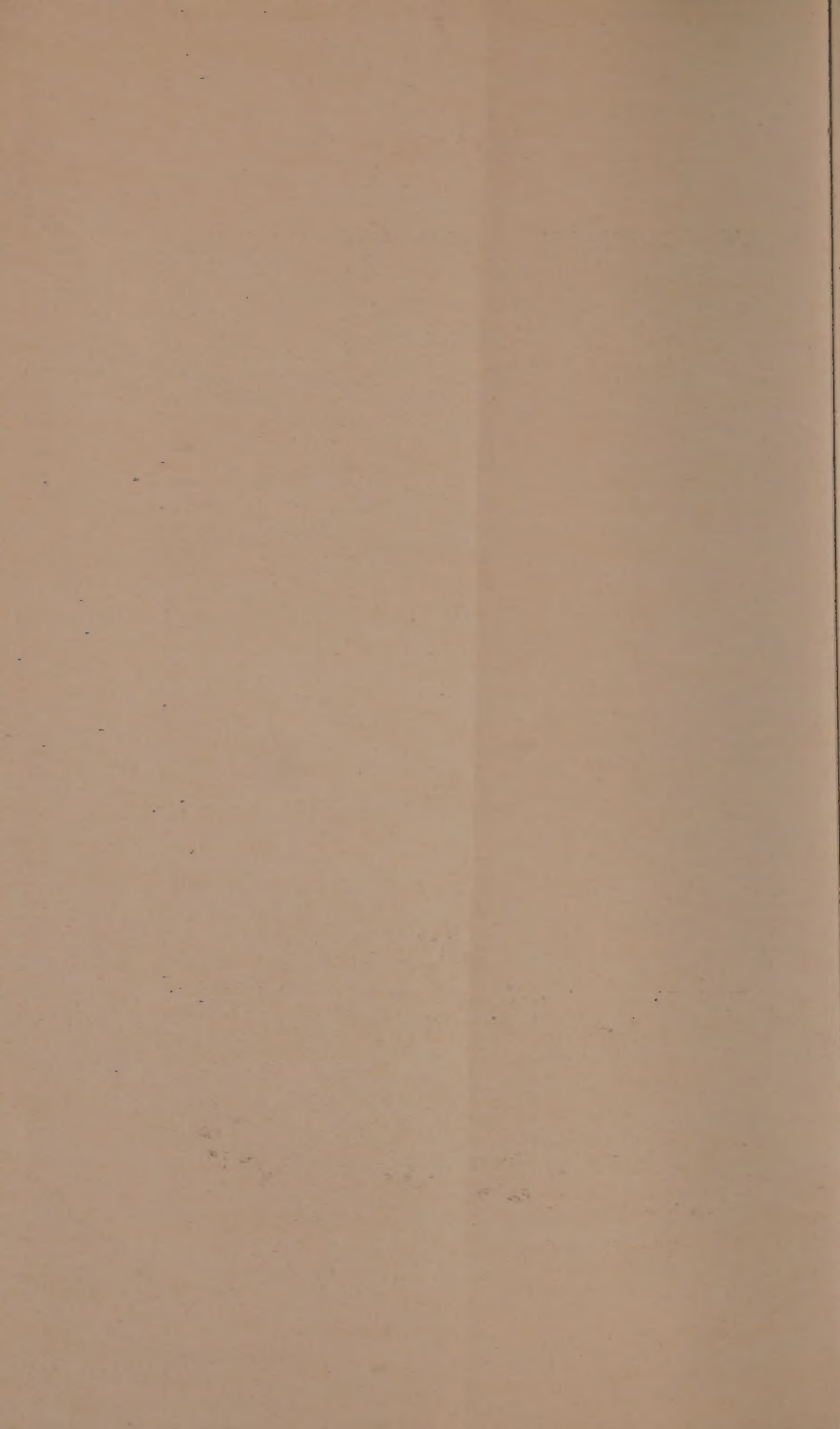
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FOREWORD

We have great pleasure in announcing that the World Engineering Congress will be held in Tokyo from October 25th to November 22nd in 1929, under the auspices of the Kogakkai (the Engineering Society of Japan) and through the generosity of the Imperial Japanese Government.

The object of the Congress is to effect an international exchange of the latest knowledge of the science and practice of engineering and to bring together the leaders in research, education and business who are directing the trend of engineering activities, thereby initiating and promoting international co-operation and understanding between the engineers of the world, so essential to the advancement of the welfare of mankind.

Many engineering congresses have been held in the past in Europe and in the United States, but this is the first occasion on which the Far East has had the privilege of convening such a significant gathering. Not only is the forthcoming congress the first of its kind to take place in Japan and the Far East, but it promises to rank above all preceding engineering conventions ever held, because of the remarkably wide scope of subjects covered and the vital influence it is likely to bring to bear upon the present aspects of international engineering.

It is our belief that Japan offers a field of unusual interest to the visiting engineers. Though but little over half a century has elapsed since Japan introduced modern engineering practice, yet we believe we are not mistaken in asserting that, at present, industrial Japan constitutes an interesting demonstration on a very extensive scale of the result of the application of modern science and technology to the problems of national development. It is to this demonstration that we invite your personal inspection.

Japan is also a land of unrivalled natural beauty, which displays the greatest charm in the autumn months, and various excursions arranged before and after the session will no doubt afford the participants ample opportunity to enjoy her enchanting scenery, to study the life of the people and, at the same time, to inspect Japan's scientific, engineering and industrial establishments.

The purpose of this pamphlet is to furnish prospective visitors to Japan with concise information on Japan and her industries, and further particulars in regard to a tour to this country are obtainable from any of the tourist, steamship or railway agencies.

WORLD ENGINEERING CONGRESS

GENERAL INFORMATION

GEOGRAPHY

The Japanese Empire, which consists of five large and about 430 small islands, and also the territories of Karafuto (Japanese Saghalien), Chosen (Korea) and Taiwan (Formosa), stretches for some 2,200 miles from subarctic waters to tropical seas (between $21^{\circ} 45'$ and $50^{\circ} 55'$ of latitude N. and $119^{\circ} 18'$ and $156^{\circ} 30'$ longitude E. of Greenwich).

This Island Empire possesses a total area of 260,038 square miles, of which Japan Proper occupies 147,292 square miles and has a population of 84,565,000 (1925 Census figures), ranking her as the fourth most densely populated country in the world.

Located in the Western corner of the Pacific Ocean and extending along the mainland of Asia like a semilunar wharf with the Japan Sea between, Japan constitutes a confluence of the four great highways from America, Australia, Europe via the Suez Canal and overland via Siberia, and is the most important centre of eastern world traffic.

Japan is within easy reach of all other parts of the world by sea or by land, for there are many comfortable steamship and train services conveniently operated to and from Japan, and, coupled with the vast variety of attractions she offers, Japan has justly been recognized as the world's greatest vacation-land, the most romantically beautiful and scientifically interesting country in the whole world.

ATTRACTIONS AND TIME OF VISIT

As a tourist land, Japan is unique. The fact that the geographical situation of Japan embraces the Temperate, Torrid and Frigid zones, gives it an unchallenged advantage as an all-the-year-round pleasure ground. The year opens with all the New Year gaiety and merriment peculiar to Japan; in January and February skiing and skating are in full swing at many mountain and hot spring resorts in the north, and good shooting may be had in various parts of the country. In February the plum blossoms herald the annual procession of flowers—the peach and the pear in March, closely followed in April by the world-famed cherry

blossoms and in May by the azaleas, wistarias, peonies and so on.

In summer, the seaside, mountain and hot spring resorts are at their best, there being numerous fine beaches which ensure safe sea-bathing and lofty mountains which invite those fond of climbing. Camping, fishing, sailing and sea-voyaging may be freely enjoyed. In autumn, the gorgeous tints of the foliage, the chrysanthemums in bloom, the clear sky and the crisp air are constant outdoor lures.

In addition to these features, the manners and customs of the Japanese people make a strong and universal appeal by reason of their quaintness and marked contrast to those of other nations. The arts and crafts of the country are unique and fascinating, and these will fully repay the careful study and investigation of the thoughtful visitor. Thus a visit to Japan can be enjoyed at any time of the year, but, generally speaking, the best time is probably in spring or autumn.

TEMPERATURE TABLE

(Averages)

Place	January		April		August		October	
	F.	C.	F.	C.	F.	C.	F.	C.
Atami	42.8	6.0	56.3	13.5	83.7	28.7	67.5	19.7
Hakone	32.2	0.1	47.7	8.7	70.2	21.2	54.9	12.7
Kamakura	39.6	4.2	56.3	13.5	78.8	26.0	62.4	16.9
Kobe	37.6	3.1	55.4	13.0	82.4	28.0	64.0	17.8
Kyoto	34.7	1.5	54.0	12.2	81.9	27.7	61.3	16.3
Miyajima	40.4	4.7	56.3	13.5	81.7	27.6	61.7	16.5
Nagasaki	41.0	5.0	57.0	13.9	81.7	27.6	63.3	17.4
Nagoya	34.0	1.1	54.9	12.7	82.0	27.8	61.3	16.3
Nikko	32.5	0.3	45.5	7.5	72.7	22.6	53.2	11.8
Osaka	37.6	3.1	55.2	12.9	84.2	29.0	64.2	17.9
Sendai	33.8	1.0	47.3	8.5	68.0	20.0	55.8	13.2
Tokyo	35.2	1.8	53.6	12.0	81.0	27.2	62.2	16.8
Uuzen	34.2	1.2	50.4	10.2	72.9	22.7	57.6	14.2
Yokohama	39.6	4.2	55.4	13.0	78.1	25.6	62.1	16.7



Meiji Shrine, Tokyo



Peerless Mt. Fuji

HOW TO REACH JAPAN

Fares shown hereunder are 1st class minimum rates.

FROM THE U. S. A. AND CANADA TO YOKOHAMA

FROM NEW YORK via the Panama Canal, Dollar S. S. Line's "Around-the-world" service (fortnightly sailing). 42 days (to Kobe). \$ 561.00.

FROM SAN FRANCISCO. Nippon Yusen Kaisha or "Japan Mail S. S. Co." (fortnightly sailing) 16 days. \$ 300.00. Dollar S. S. Line (fortnightly sailing) 16 days. \$ 300.00. These lines run via Honolulu.

FROM SEATTLE. Nippon Yusen Kaisha, (sailing:—twice a month) 16 days. \$ 195.00. American Mail Line (fortnightly sailing) 13 days. \$ 300.00. Osaka Shosen Kaisha or "Osaka Mercantile S. S. Co." (sailing:—2 or 3 times a month) 15 days. \$ 195.00.

FROM VANCOUVER. Canadian Pacific Steamships, Ltd. (sailing:—every 2 or 3 weeks) 10 days. \$ 300.00.

FROM EUROPE TO KOBE

FROM MARSEILLES. Nippon Yusen Kaisha (fortnightly sailing) 37 days. £ 102. Peninsular & Oriental S. N. Co. (fortnightly sailing) 37 days. £ 108. Messageries Maritimes (fortnightly sailing) 41 days. £ 108.

Besides the above lines, the following companies operate services to Japan:

Lloyd Triestino LineFrom Trieste, Venice and Brindisi.

Hamburg-America LineFrom Hamburg, Rotterdam and Genoa.

Norddeutscher Lloyd Line..From Hamburg, Rotterdam and Genoa.

Ellerman & Bucknall Line..From London and Marseilles.

Blue Funnel LineFrom London and Marseilles.

FROM AUSTRALIA TO KOBE

FROM MELBOURNE. Nippon Yusen Kaisha (monthly sailing) 33 days. £62-10-0. Eastern & Australian S. S. Co. (monthly sailing). 40 days. £62-10-0.

FROM SOUTH AMERICA

WEST COAST FROM VALPARAISO. Nippon Yusen Kaisha (monthly sailing) 55 days to Yokohama. ¥656.00.

EAST COAST FROM BUENOS AIRES via Rio de Janeiro and S. African ports. Nippon Yusen Kaisha (monthly sailing) 66 days to Kobe. Peso 920.00. Osaka Shosen Kaisha (ten times a year via Rio de Janeiro, New Orleans and Los Angeles). 75 days to Yokohama. Peso 1,010.

TRANS-SIBERIAN ROUTE

The trans-Siberian Railway service is operated thrice a week, and it has good train connections with the principal cities in Europe and the Orient. It takes 16 days from London to Tokyo via this route, 16 days from Paris, 15 days from Berlin. From Siberia there are three routes to Japan: (1) Vladivostok to Tsuruga, on the Japan Sea, (2) via Changchun, Mukden, and Fusan through Chosen (Korea), (3) via Changchun, Mukden, and Dairen through South Manchuria, thence by local steamer. Of these, the 2nd route, with 122 miles of waterway (9 hrs.) between Fusan and Shimonoseki, has the shortest sea voyage.

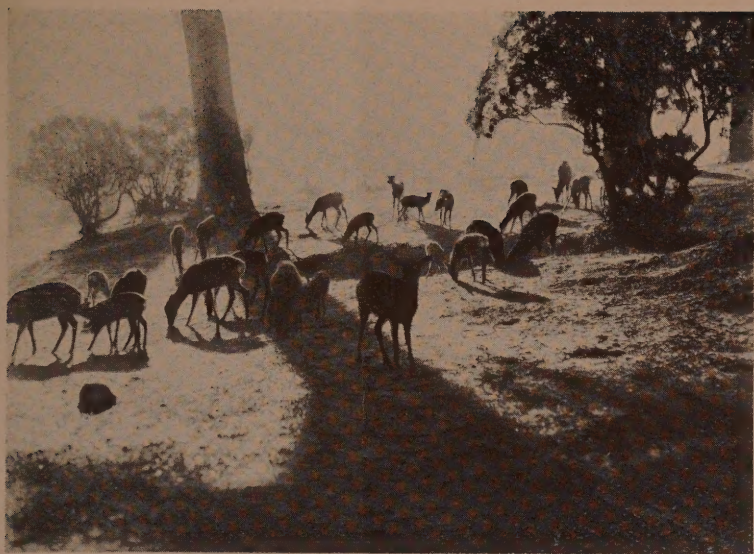
The traveller is advised to consult the Wagons-Lits Co. or other tourist agencies for detailed information regarding this railway journey.

HOSPITALITY

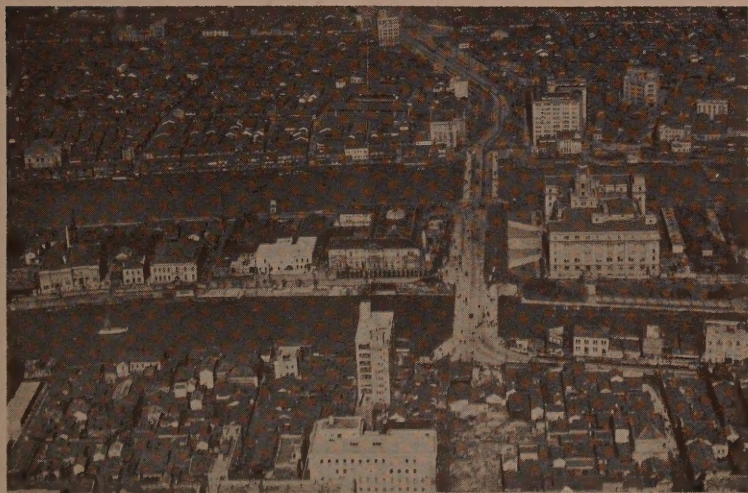
The following privileges will be extended to the delegates or members of the World Engineering Congress and their accompanying families:

Nippon Yusen Kaisha . . . 15% reduction on passage fares
(via European, Australian and
Seattle-Japan Lines only).

Osaka Shosen Kaisha . . . 15% reduction on passage fares.



Tame Deer Park, Nara



Bird's-eye view of Osaka City

The Japanese Government Railways, the Chosen Government Railways and the South Manchuria Railway Co., may also grant the issue of 1st class free passes on their lines until the participants' arrival in Tokyo.

HINTS TO TRAVELLERS

PASSPORTS AND VISÉS

All foreign visitors to Japan and other Far Eastern Countries must provide themselves with passports, viséd, before starting, by a consul or other authorized representative of each country the traveller intends to visit. The citizens of Germany, France, Switzerland, and Lithuania, and subjects of the Netherlands, Belgium, Spain, and Italy, and British subjects residing in Hongkong are not required to obtain Japanese visés on their passports. Full information regarding passports and visés can be obtained from the diplomatic representatives of the above countries or tourist agencies.

CLOTHING

As the climatic condition of Japan Proper is about the same as that of the middle belt of the United States and the central and southern parts of Europe, the clothing worn in the respective seasons in those sections is also suitable for Japan. Umbrellas and rubber shoes will be found useful on wet days. At government and Imperial banquets and garden parties it is customary in Japan to wear silk hats and frock-coats in the daytime and full evening dress in the evening.

CUSTOMS

Customs examination of baggage is made at all ports of entry, on board the channel steamer between Fusan and Shimonoseki, and at all frontier stations. As a general rule, personal effects of the traveller are exempted from duty, and 50 cigars, 100 cigarettes, or $\frac{1}{4}$ lb. of cut tobacco are admitted free in Japan. For the Customs examination, many travellers hand their keys to the runners of the leading hotels, an arrangement which results in having the baggage cleared quicker than if attended to by the owner himself.

CURRENCY

The nominal par value of the Japanese yen compared with the coinage of other countries is approximately as follows:—

1 yen of 100 sen equals 50 cents (U. S. A.) 2s (British), 2½ fr. (France), 2 m. (Germany). But the market rates of these currencies are subject to fluctuation, and present values depend upon the rate of exchange prevailing on the day of conversion of foreign money into yen or vice versa.

HOTELS

The principal cities and tourist points of Japan, Chosen (Korea), Manchuria and Taiwan (Formosa) are provided with foreign-style hotels. Most of them are really fine hotels with every modern convenience and well equipped accommodation, excellent cuisine and attentive service. The American plan with a flat charge for room and meals is mostly adopted, but some hotels are run on the European plan (room only) or on both plans.

The rates for hotels vary according to the location and accommodation, but the average rate on the American plan for a single room without private bath is ¥12-¥15 and on the European plan ¥5-¥9 per day.

MOTOR-CAR AND JINRIKISHA FARES

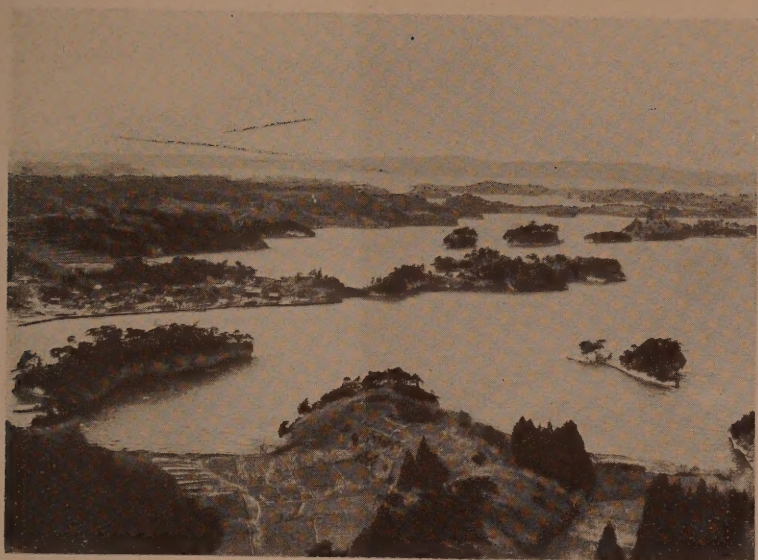
The jinrikisha ('man-pulling carriage'), popularly called the "rikisha" is omnipresent in Japan; but recently motor-cars and taxi-cabs have been fast taking the place of jinrikisha, especially in the large cities and towns. The police authorities of each place regulate the charges for conveyances, and the average rates are:—

Motor-car ¥4.00 — ¥5.00 per hour per car.

Jinrikisha ¥0.80 — ¥1.00 per hour

RAILWAYS

The Japanese Government Railways operate a system of 8,300 miles in Japan Proper, with convenient connections with private railway lines which reach 3,500 miles and the



The Isle-dotted Bay of Matsushima



Miyajima Island in the Inland Sea

service has gained an excellent reputation for safety, comfort and punctuality. The fast long-distance trains on the main lines are equipped with well-upholstered coaches, sleeping-and dining-cars, modelled on foreign standards. The Limited Express Trains between Tokyo and Shimonoseki carry observation cars, and ordinary express trains are run between the large cities.

On the government lines, three classes of accommodation are provided, 1st, 2nd and 3rd. Fares are based on the 3rd class rate, which is $2\frac{1}{2}$ sen for the first 50 miles, with lessening rates for intervening distances up to and over 500 miles, the rate for the latter being 1 sen a mile ($\frac{1}{2}$ cent, U. S. A.; 1 farthing, British). The 2nd class fare is twice the 3rd class fare, the 1st class, three times. 1st class fare for 100 miles, for instance, is ¥6.90 (U. S. \$3.45, or 14 shillings). Sleeping berth charges are:—1st class, lower berth ¥7.00, upper ¥5.00; 2nd class lower, ¥4.50, upper ¥3.00 per night. Small supplementary fares are charged for express trains.

The Chosen Government Railways, the South Manchuria Railway Co. and the Taiwan Government Railways have extensive and well-maintained services in Chosen (Korea), South Manchuria and Taiwan (Formosa) respectively, and the visitor can travel in these countries with the utmost ease and comfort. In favour of the participants and the accompanying families, the Japanese Government Railways, the Chosen Government Railways, the Taiwan Government Railways and the South Manchuria Railway Co. may issue 1st class free passes; available during the session of the Congress.

THE JAPAN TOURIST BUREAU

In order to save time, trouble, and expense, visitors to Japan are advised to avail themselves of the facilities offered by the Japan Tourist Bureau, an organization established in 1912, which co-operates with the Japanese Government Railways, other railways and steamship companies, hotels, and other interests catering to foreign visitors. The Bureau is not conducted as a money-making enterprise. Its service, of the highest order, is rendered free of charge, its aim being to assist travellers and business men in every possible way and, with an organization covering Japan, Chosen, Manchuria,

Taiwan and China, its aid is invaluable to strangers. Its offices furnish travel information, plan tours, arrange itineraries, secure hotel accommodations, provide letters of introduction, social and business, obtain admission to private places of interest, museums, etc., supply travel literature and issue traveler's cheques and different kinds of railway and steamer tickets.

The Japan Tourist Bureau has been appointed as the Official Transportation Agent of the World Engineering Congress for the various excursions and inspection tours that are to be arranged by the Congress, and, of course, every possible assistance will be given to the participants in their independent trips in Japan and their homeward journeys.

HEAD OFFICE: TOKYO STATION BUILDING, TOKYO

CABLE ADD.—"TOURIST"

BRANCH OFFICES

Dairen :—	South Manchuria Railway Building.
Keijo :—	Chosen Railway Building.
Taihoku :—	Railway Dept. of the Taiwan Government.

TICKET AND INQUIRY OFFICES

Tokyo :—	Tokyo Station, and Imperial Hotel. Mitsukoshi and Matsuya Dept. Stores. Railway Inquiry Office, Kanda. S.M.R. Information office, Marunouchi Bldg.
Yokohama :—	Sakuragicho Station and Yokohama Station.
Nagoya :—	Railway Inquiry Office, Hirokoji.
Kyoto :—	Kyoto Station and Daimaru Dept. Store.
Osaka :—	Mitsukoshi and Daimaru Dept. Stores. S.M.R. Information Office. Railway Inquiry Office, Azuchi-machi.
Kobe :—	2, Itchome, Kaigan-dori.
Shimonoseki :—	Opposite Shimonoseki Station.
Nagasaki :—	4. Oura.
Taihoku :—	Railway Hotel Building.
Antung :—	Railway Station.
Mukden :	1, Miyajimacho and Yamato Hotel.
Dairen :—	54, Isecho and Yamato Hotel.
Changchun :—	16, Nippon-Bashi Dori.
Harbin :—	S.M.R. Office.
Manchuli :—	Erh-tao-kou.
Tientsin :—	43, Central Road, French Concession.
Peking :—	Ha-ta-men Street.
Shanghai :—	9, Canton Road.

OFFICES IN U.S.A.

New York :—	c/o Japanese Government Railways, Metropolitan Building, 1, Madison Avenue. c/o Nippon Yusen Kaisha, 10 Bridge Street.
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The Bureau has many other inquiry offices in Japan, Chosen and South Manchuria, and also many agencies in the principal seaports and cities of the world.



Nagoya Castle, Nagoya



Kiyomizu Temple, Kyoto

INDUSTRIES AND CHIEF PRODUCTS OF JAPAN

SPINNING AND WEAVING INDUSTRY

The Industrial Revolution in Japan, which was started at the Restoration of Meiji, made a marked advance after the beginning of the 20th century, and the old household industry and handwork were replaced by the new factory system and machinery. This change was especially conspicuous in the spinning industry. According to the report of the Japan Spinners Association formed by 54 leading companies, the paid-up capital amounted to over ¥ 350,000,000 and reserves to ¥ 250,000,000, and, in the number of working spindles, Japan ranks 7th among the leading spinning countries of the world.

The progress of cotton spinning in Japan is especially remarkable, for it has attained in less than 40 years the position of foremost importance in her industrial scheme, the export of cotton yarns and fabrics amounting recently to 25-30% of the total value of the Japanese export trade. Silk spinning is generally a subsidiary business of leading cotton mills, as Kanegafuchi Spinning Co., Fuji Gasu Spinning Co., Nagoya Spinning Co., etc., producing annually a little over ¥ 80,000,000 in value of spun silk.

Hemp spinning and weaving are combined in Japan and are practically monopolized by two big mills, the Teikoku Seima and the Nippon Seima Companies.

The cotton-weaving industry is mainly centred in Osaka, followed by Aichi, Shizuoka, Okayama, and Hyogo Prefectures. The yearly output of various cotton fabrics amounts to about ¥ 750,000,000.

The silk-weaving is mostly done in Fukui, Kyoto, Gumma and Ishikawa prefectures, and silk yarns are annually produced to the value of about ¥ 450,000,000.

ARTISTIC INDUSTRY

Cloisonné. The art of cloisonné enamelling has been known in Japan since the 16th century, and Japan's cloisonné wares enjoy a world-wide reputation for their perfectly ex-

quisite workmanship and extremely fine quality. Nagoya, Kyoto and Tokyo are the three great centres of the enamel-ler's art. Cloisonné wares are exported in large quantities.

Lacquer-Ware. Lacquer-ware forms one of Japan's notable productions. As with pottery-ware, there are two kinds of lacquer-ware—that made for ornamental purposes and that for utility. The finest products in lacquer are manufactured in Kyoto, Ishikawa, Wakayama and Fukushima Prefectures, but fine art articles are produced in Kyoto, Nagoya and Tokyo—in particular "makie" or raised lacquer-ware.

The output of lacquer-ware amounted to ¥ 30,000,000, yearly.

Earthenware and Porcelain. These articles constitute distinctive products of Japan and occupy an important position in Japan's foreign trade as principal exports. Seto and Tajimi districts near Nagoya, Arita and Karatsu districts in Kyushu, and Kyoto are the noted centres of the pottery industry. The annual production is valued at ¥ 75,000,000 and the amount of exportation at ¥ 35,000,000.

CHEMICAL INDUSTRY

Cement. The backbone of the geological formation of Japan is composed of Paleozoic sediments. There are many cement factories using the Paleozoic limestone as their source of supply.

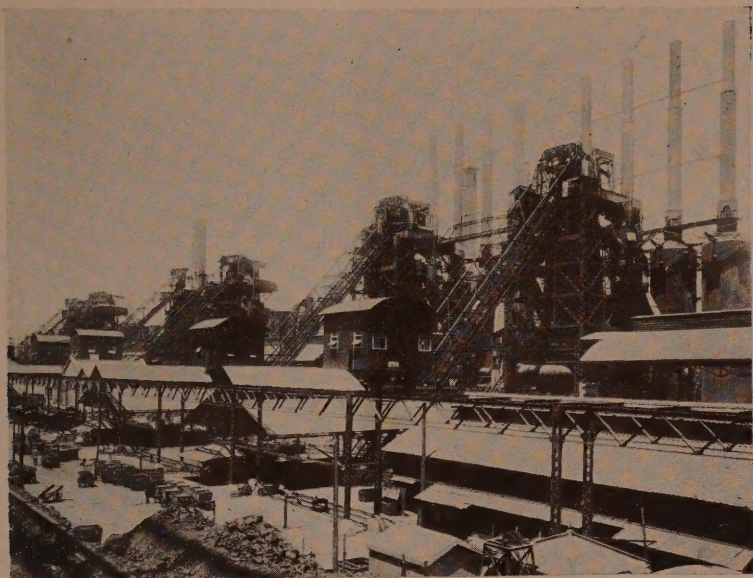
Dye-stuffs. Before the European War, dye stuffs were mostly imported from abroad, but to-day Japan produces them abundantly. Tokyo and Osaka have many factories.

Celluloid. Various celluloid articles are manufactured in Japan and factories are located in Tokyo, Osaka, etc. The factories which manufacture the materials of these articles, celluloid plates, are in Osaka.

Sugar. The sugar industry is most active in Taiwan (Formosa). Its annual output amounts to ¥ 200,000,000.

Paper. Japanese paper is made from the bark of paper-mulberry trees and Fukui, Kochi, and Shizuoka Prefectures are noted for their paper products. There are many paper-mills operated on a large scale, using pulp of conifers as materials. Hokkaido ranks first in the volume of Japan's paper production, on account of its wealth of forests.

Brewing. Japanese 'saké' is made from rice, and sake-



The Government Steel Works at Yawata



The Mitsubishi Ship-Building Yard at Kobe

breweries are established at many places. Large beer breweries are located in and near big cities, such as Tokyo, Yokohama, Osaka, Nagoya, Sapporo, Moji, etc., on account of their enormous demands.

MINING INDUSTRY

Copper:—Japan is rich in mineral resources, more especially in copper and coal. Among many, the well-known copper mines are as follows:—Ashio mine in Tochigi Prefecture; Hitachi mine in Ibaraki Prefecture; Besshi mine in Ehime Prefecture; Kosaka mine in Akita Prefecture. There are several custom smelters around the Inland Sea, among which Saganoseki smelter is the most renowned.

Gold and Silver:—The largest of the gold mines in Japan is the Mitsui-Kushikino in Kagoshima Prefecture, and Korea produces a considerable amount of gold from its many small gold mines. On the whole, however, gold is produced in Japan as a by-product of copper smelting. Those smelters which produce much gold are Saganoseki and Hitachi. Formerly there were many silver mines in Japan, but nowadays almost all silver ores are sent to custom smelters, with the result that silver has also become a by-product of copper smelters. Kosaka, Hitachi, and Saganoseki produce much silver.

Iron:—Iron deposits are mostly found in Hokkaido, in the north-eastern part of the Main Island and in Korea. Iron and steel works, therefore, are established at Wanishi in Hokkaido, Kamaishi in Iwate Prefecture, Main Island, and Kenjiho in Korea, because of their relation with the raw material. There is another large works at Yawata, near Moji in Kyushu, called the Imperial Iron & Steel Works, which is run on a grand scale. The works gets its raw material from Korea, etc., but the convenience of obtaining coal (it is right in the north corner of the Chikuho coal-field) led to the works being established at Yawata.

Coal:—Japanese coal mostly belongs to the black coal of the Tertiary formation. Japan is strewn with many coal fields, among which the following are the most noted:—Karafuto coal-field, Ishikari coal-field in Hokkaido, Joban coal-field in the Main Island, Chikuho coal-field and Miike coal-field, both in Kyushu. Korea produces anthracite in the Paleozoic formation; e. g., Heijo coal-field.

Oil:—Petroleum is produced in Akita and Niigata Prefectures in the Main Island and in Taiwan (Formosa).

ELECTRICAL ENGINEERING

Owing to the mountainous character of the country and the rainfall, Japan has an abundance of water power available for generating electricity.

At present Japan has contracted for 5,000,000 h.p. of hydro-electric power. Half of this is being utilized for lighting, running electric trains, and other enterprises; the rights for the utilization of the remaining half have been granted, and plants are under construction. Foreign visitors will be surprised to find that even the smallest fishing villages are supplied with electricity both in the streets and in the houses. The first successful, long-distance transmission of electricity was made in 1899, from Lake Inawashiro to Tokyo. There are now some 1,700 hydro-electric power stations, and these plants are scattered all over the country. But within a radius of 80 miles of Nagoya there are more power-plants than in any other equal area in Japan.

The electric power-plants generated by heat have a total capacity of 1,500,000 h.p. Electric trams are in operation in the principal cities and towns, in many of the large villages, and in and around the noted resorts. Sections on the lines of the Government Railways are electrically operated, and a further plan of electrification of several main line sections is now under contemplation. All kinds of electrical lamps and wires, and most generators, motors and other electrical machines are now manufactured by factories in Tokyo, Osaka, etc.

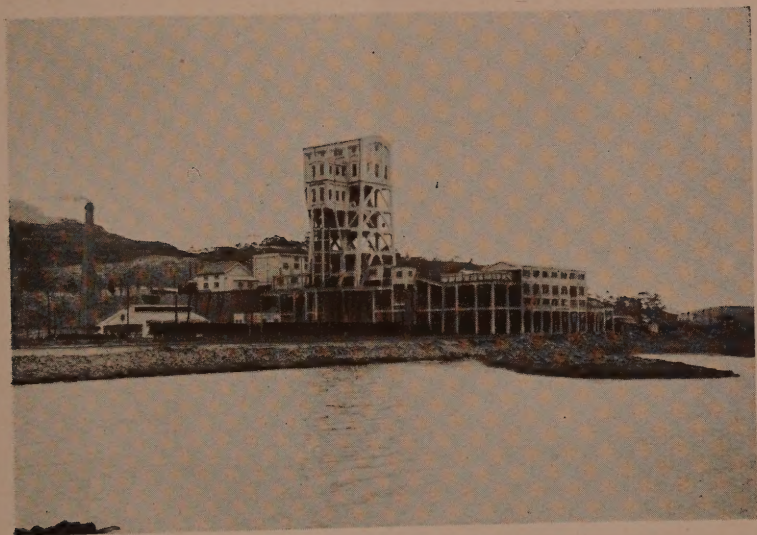
SHIP-BUILDING

The first large steamer built in Japan was the s.s. "Hitachi Maru" (6,000 tons), built in 1898 by the Mitsubishi Shipbuilding Yards at Nagasaki. Since then the Mitsubishi and Kawasaki Shipbuilding Yards have undertaken the construction of a number of larger steamers, of over 10,000 tons displacement.

The principal shipbuilding yards are as follows:—*Imperial Shipbuilding Yard at Yokosuka*—This is the oldest shipbuilding yard in Japan, having been established by a French



Smelter of Ashio Copper Mine



The Miike Colliery in Kyushu

engineer towards the end of the Tokugawa period. Many improvements have been effected by the government since then, and the yard is now being carried on on an extensive scale. *Mitsubishi Shipbuilding Yard at Nagasaki*—This is the foremost shipyard in Japan, and ranks almost with the leading shipyards of the world in equipment, etc. *Mitsubishi Shipbuilding Yard at Kobe*—This yard also figures as one of the leading shipbuilding yards in Japan. The main business is the building and repairing of ships and the manufacture of heavy machines. *Kawasaki Shipbuilding Yard at Kobe*—This is the second largest shipbuilding yard in Japan. Formerly the company devoted their attention chiefly to building medium-sized ships and torpedo craft, but now the works can build ships of any size up to a dreadnaught of 27,000 tons. *Osaka Iron works at Osaka*—At first the works chiefly constructed dredgers, shallow draught steamers, trawlers, etc., but now they have begun to build ordinary passenger and cargo boats of under 10,000 tons. *Asano Shipbuilding Yard at Tsurumi*—This yard possesses a number of cradles for ships of 12,000 tons.

There are 14 other ship-yards, of which the Mitsubishi Dockyard at Uno Bay, the Uruga Dockyard at Uruga and the Yokohama Dockyard at Yokohama are prominent ones.

MACHINE WORKS

Various engineering works are found near the large cities, such as Tokyo, Osaka, Kobe, Nagoya and Moji. It deserves special mention, however, that four large "Industrial Cities" have lately been established. They are Kawasaki between Tokyo and Yokohama, Amagasaki between Osaka and Kobe, Yawata and Tobata near Moji in Kyushu. Many large and small machine works, factories for the chemical industry, etc., are within these cities.

ARCHITECTURE

The characteristic feature of Japanese architecture is that wood is the main material for building. This is because of the fact that it is most suitable for Japan's climate and because of the durability of wooden house against earthquake vibration. There are not many old structures in Tokyo, for it is a newly established city, not over 350 years in existence;

but, in Kyoto and Nara, there are still preserved structures over 1,300 years old. Japanese architecture is appropriate for dwelling houses or temples, but it is not recommendable for offices, museums, libraries, hospitals or schools, because of the inflammable nature of the materials employed. Consequently, since the European style of architecture was introduced, many have adopted the latter. Therefore, the main business quarters in large cities are almost entirely filled with Europeanized buildings.

AGRICULTURE

Japan is on the whole an agricultural country. The report of the Department of Agriculture and Forestry shows that out of the total area of Japan Proper, which is some 148,000 square miles, the cultivated land is 22,000 square miles (nearly 14,000,000 acres). This figure can be divided approximately as follows:—Paddy fields (for rice) 11,500 sq. miles; dry fields (for wheat, barley, vegetables, etc.) 10,500 sq. miles. It will be seen that only about 15% of the total area of Japan is intensively cultivated; but, in this land of mountains, this is about the most efficient utilization of the arable land. The cultivated areas are cut up into small farms, because of the varied and complicated topography of the land. Another more important reason is that, in the case of rice fields, each patch of farm is filled with water, and the depth of the water in each patch must be kept strictly uniform. This necessitates the farm being divided into small patches, so that each patch may easily be made and kept level. The cultivation of farms is done mostly by manual labour, but the skilful tilling, together with the application of modern agricultural science, produces a quite satisfactory result in the crop harvested. Though the soil is naturally fertile, it is made more so by regular subsoil working and careful weeding. In Hokkaido, where farms, being all dry-fields, naturally are larger than the paddy fields of the Main Island, machinery is utilized to a greater extent in the cultivation of crops.

The principal crops are rice, wheat, barley and mulberry (the leaves for feeding silkworms).

Rice is the main staple crop and constitutes the greater part of the farm products. The total amount of the rice crop is 56,000,000 koku (a koku equals 5.11 bushels) a year.

Barley and Wheat come next, the total crop of these being 9,000,000 koku a year. Beans, and Tobacco are also raised.

SERICULTURE

Sericulture is one of the most important industries in Japan. It ranks high in her foreign trade, its transactions coming up to 41% of the total amount of her exports. Moreover, Japan supplies about 61% of the silk consumption of the rest of the world.

The central and northern provinces of the Main Island have from time immemorial been dotted with silk-producing districts, but, in late years, they made wonderful progress. Nothing is so remarkable in the recent industrial development of Japan as the manner in which these districts have spread, until scarcely a rural commune remains without its mulberry plantation. The production of raw silk has accordingly made a great increase, and now the average annual yield is about 85,000 kan (a kan equals 8.34 pounds) or ¥ 700,000,000.

TEA

One of the characteristic products of this country is Japanese tea or green tea. The principal tea-growing centres are Shizuoka and Miye and Kyoto Prefectures. In the first two Prefectures is mostly grown tea for export; among them Shizuoka ranks first in the overseas tea trade, whereas Kyoto Prefecture produces the tea for home consumption. Uji district in Kyoto Prefecture has long been known in domestic markets for its production of choice tea of distinctive flavour. Hence the word "Uji" is often used as a synonym for tea of superior quality. The tea-plant is a shrub belonging to the same family of evergreens as the camellia. As a rule, the tea-plant is grown in terraces on gentle hill slopes, but level ground may also be utilized, provided it be kept well drained.

STOCK-FARMING

Stock-farming had not been very significant in Japan, but, in the last ten years, it greatly expanded from its former state. An unfavourable factor is the lack of extensive pasture lands, but the increasing demand in recent years for meat, milk and butter has given an impetus to the development of

this industry. The present statistics of the stock in the country are as follows:—Cattle, 1,500,000; Horses, 2,000,000; Sheep, 200,000; Pigs, 700,000; Fowls, 40,000,000.

FRUIT-CULTURE

Recently, fruit culture has made a remarkable development. Many orchards and small fruit patches are being set out every year. The principal products are Japanese tangerines, persimmons, pears, apples, peaches, water-melons, bananas, cherries, loquats, grapes, etc.

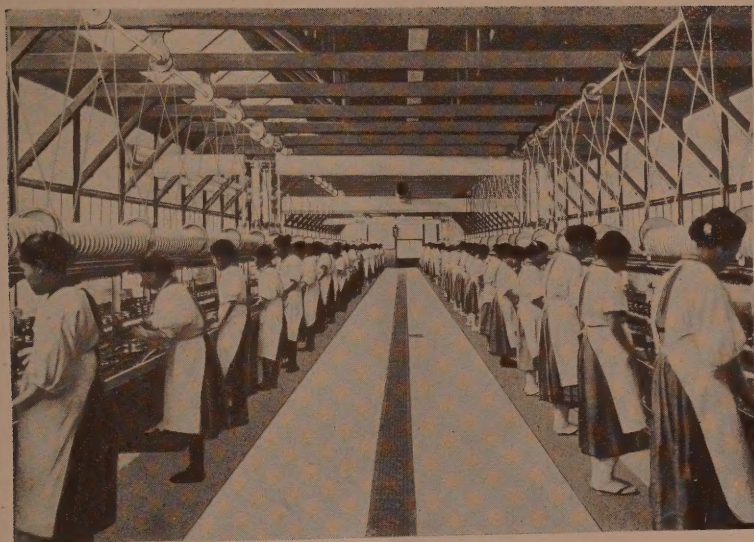
Japan is blessed with a rich supply of fruit at all times of the year, and fresh fruit of some kind is always obtainable. Consequently, canned fruits are not much consumed.

FISHING

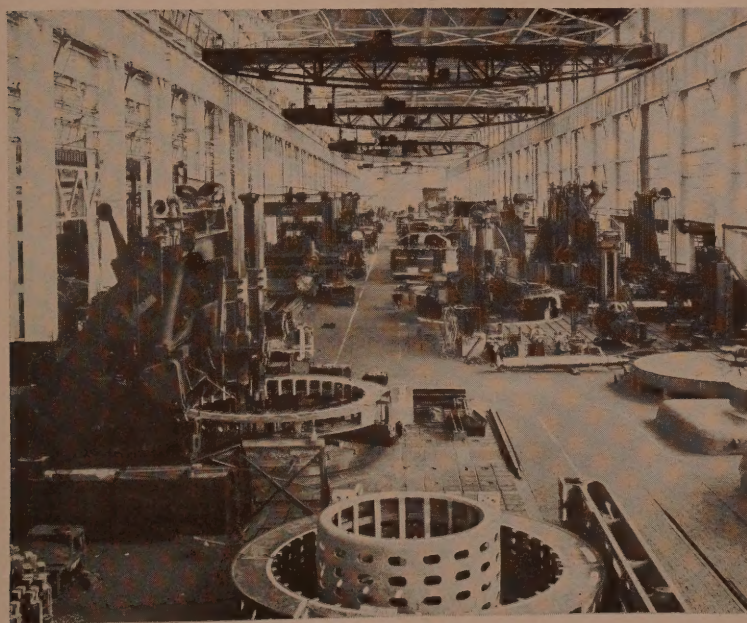
On account of the large and constant demand for fish in domestic markets, fishing has always been very active in Japan. The country's extended sea coast, and its many lakes and rivers, produce a great variety of fish, lobsters, crabs, and shell as well as other molluscs. The greater part of the catch is sent to the market raw, but some fish is salted or dried. Hokkaido and Karafuto (Saghalien) produce a great quantity of Salmon, but this is usually salted or canned. Kochi Prefecture and other districts on the Pacific coast carry on an industry of perfectly drying the flesh of bonito and making "Dried Bonito", which is used for seasoning Japanese native soup. Herrings are abundantly caught in Hokkaido and Karafuto, and sardines are taken almost everywhere on the Pacific coast, but they are used only as fertilizer.

FORESTRY

Owing to the abundant rainfall, all mountains in Japan are thickly wooded, thereby adding much to the scenic beauty of the land. In Hokkaido and Taiwan, there are forests which have never been approached by wood-cutters, but, on the Main Island, virgin forests are scarce, these mostly having been felled and the land reforested. The principal kinds of trees planted are cypress, cryptomeria, pine, oak, etc. Akita, Nagano, Nara, Wakayama and Hyogo Prefectures are especially noted for forestry. The annual outputs of these forests are approximately as follows:—Lumber, ¥ 130,000,000; Fuel and charcoal, ¥ 80,000,000; Bamboo, ¥ 8,000,000.



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The Shibaura Engineering Works at Tsurumi

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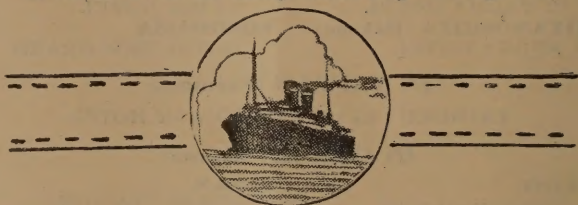
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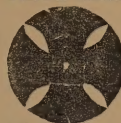
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